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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/449,763 11/26/99 LEE

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EXAMINER

MMC2/0620

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RD, R	
ART UNIT	PAPER NUMBER

2837

DATE MAILED:

06/20/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/449,763

Applicant(s)
Lee

Examiner
Bentsu Ro

Art Unit
2837



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 19, 2001
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☒ Claim(s) 2 and 8 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other: _____

THIRD OFFICE ACTION -- A FINAL REJECTION

1. Claims s 1, 3-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Reeds US Patent No. 4,891,526.**

Because Reeds teaches the same subject matter as claimed, therefore, the examiner maintains the same rejection. See the following comparison for the claims and Reeds teaching.

The claims:

Claim 1. A positioning device comprising

an object table,

a sub-system for processing an object to be placed on the object table,

a drive unit for displacing the object table relative to the sub-system,

and a measuring system for measuring a position of the object table relative to the sub-system,

the drive unit comprising a stationary part

which is fastened to a first frame of the positioning device,

Reeds teaching:

Reeds teaches a positioning device, specifically shown in Figs. 1, 3, 6;

Fig. 1 shows a x-y stage plate 12 which is an object table, a mounting block 4 mounted onto the x-y stage plate 12;

Fig. 1 shows a wafer 2 positioned on the mounting block 4, the wafer 2 is an object; on top of wafer 2, there is symbolically shown an ion-beam axis 6, the ion-beam axis 6 is produced by a sub-system (not shown in the drawing) for processing the wafer 2;

Fig. 7 shows a y-drive motor 36 for displacing the object table 12 in the y-direction (the direction perpendicular to the page) relative to the ion-beam axis 6;

Fig. 3 shows a x-interferometer 34 for measuring the position of x-y stage plate 12 relative to the ion-beam axis 6;

Fig. 7 shows the y-drive motor 36, which is a stationary part;

Fig. 7 shows the motor 36 fastened to the base 28, therefore, the base 28 is a first frame of the positioning device;

while the measuring system comprises a stationary part

and a movable part which is fastened to the object table for cooperation with the stationary part of the measuring system,

characterized in that the stationary part of the measuring system is fastened to a second frame of the positioning device

which is dynamically isolated from the first frame.

Claim 3. A positioning device as claimed in claim 1, characterized in that the object table is displaceable over a guide parallel to at least an X-direction, the guide being fastened to the second frame.

Claim 4. A lithographic device comprising a radiation source, a mask table, a projection system having a main axis

Fig. 1 shows the x-interferometer 34 which is a stationary part of the measuring system;

Fig. 1 shows a x-position mirror 30 which is a movable part of the measuring system, the mirror 30 is fastened onto the x-y stage plate 12;

Fig. 3 shows the top view of the assembly, including the interferometer 34, the mirror 30, the plate 12, the mounting block 4, and the wafer 2;

Fig. 4 shows a three-dimensional view of the same;

Fig. 1 shows the x-interferometer 34 mounted on the θ -stage platform 20, therefore, the θ -stage platform 20 is a second frame of the positioning device;

Fig. 1 shows a vertically adjustable flexible mount 26a which mount 26a dynamically isolates the θ -stage platform 20 (the second frame) from the base 28 (the first frame);

Fig. 6 shows the detail structure of the flexible mount 26a;
column 9, lines 4-8 describe the spring constant of the flexible mount 26a; lines 22-27 describe the minimization of impact between the θ -stage platform 20 and the base 28.

Fig. 1 shows linear bearings 14a, 14b, 18a, 18b, etc, which are guides for the x-y stage plate 12.

the radiation source, the mask table, the projection system and the main axis are all symbolically shown in Fig. 1 by the ion-beam axis;

a substrate table....(all way through to the end of claim 4).

same as that of claim 1, discussion is omitted.

Claim 5.

Same as that of claim 3.

Claim 6.

Same as that of claim 1 but in a second direction;
Reeds teaches x-y- θ -z positioning stage including y-direction as mentioned in claim 1; the subject matter of claim 6 reads onto the x-direction.

Claim 7.

Basically similar to that of claim 3 but in two axes x and y;
Reeds Fig. 1 shows two axes guides.

2. Claims 2 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

3. Applicant's arguments have been fully considered, but they are not convincing. Basically applicant argues:

- The mounts 26 are very stiff (see, for example, col. 9, lines 4-8, which states that they undergo a deflection of 0.010 inches for an applied force of 500 pounds; presumably there would be an even smaller deflection for a force applied in the horizontal direction since the mounts are thicker in the horizontal direction).

Examiner's response:

The stiffness and the small deflection are not the issue as long as the mounts do absorb the force.

- Flexible mounts 26a-26c do not dynamically isolate platform 20 from base 28 because the flexible mounts 26a-26c are well known metal diaphragms that are designed to be stiff in the horizontal direction while allowing for movement in the vertical direction. That is, the mounts allow the central hub 126 to move vertically with respect to the outer annular

portion of the mounts, while preventing the central hub from moving horizontally with respect to the outer annular portion of the mounts.

Examiner's response:

The claims do not set forth any limitation to the direction of the force isolation and the magnitude of the force isolation, therefore, as long as the flexible mounts do absorb force, the function of dynamic isolation is achieved.

- Applicant has cited Reeds statement in column 4, lines 21-48; column 2, lines 45-46; column 8, line 67 to column 9, line 2; column 9, lines 4-8; column 9, lines 11-15; etc., in order to show that there is no dynamical isolation of the mounts.

Examiner's response:

These statements, according to the examiner's careful study, do not disqualify the flexibility function of the mounts. In fact, Reeds uses the words "flexible mounts" is self-explanatory in that the mounts are "flexible". Because the mounts are flexible, the function of the dynamic isolation of the mounts is obvious.

Examiner's further comments:

- One who studies machine elements knows that the center hub 126a (see Reeds Fig. 6) can be bent with respect to the rim of the flexible mount. This angular movement will absorb the horizontal force.
 - The magnitude of the bent is not an issue as long as the flexible mount can function as such.
 - Reeds calls the mounts 26a "flexible", therefore, the mounts must be able to absorb certain force. The direction of the force absorption and the magnitude of the force absorption are not the issues at all as long as the mounts can function to absorb force.
4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication should be directed to Bentsu Ro at telephone number (703) 308-3656.

June 6, 2001

Bentsu Ro
BENTSU RO
PRIMARY EXAMINER